1. (original): An electricity meter, including:

an encloseable casing comprising a cover and a baseplate;

electrical connection spades extending through said baseplate and outwardly therefrom for mechanical seating thereof in a mating receptacle; and

a metrology board and resilient connectors housed within said casing, said metrology board electrically connecting to said spades through said resilient connectors so that said metrology board is connected for producing a signal indicating electricity consumption.

2. (original): An electricity meter as in claim 1, further including mating posts and holes associated with said baseplate and said metrology board for mutual physical connection thereof.

3. (original): An electricity meter as in claim 2, wherein said baseplate has tapered posts and said metrology board defines holes therein to mate with said tapered posts such that said board is supported on said baseplate in a predetermined position relative thereto.

4. (original): An electricity meter as in claim 3, further including weldments such that said baseplate and said metrology board are welded to each other in said predetermined relative position.

5. (original): An electricity meter as in claim 3, further including a coil electrically associated with said spades and physically supported in predetermined relationship to said baseplate, and wherein said metrology board includes a Hall Effect sensor that is positioned relatively adjacent said coil in a preselected position predetermined by the predetermined positions respectively of said coil and said metrology board relative to said baseplate.

6. (original): An electricity meter as in claim 2, further including:

a chassis supported on said baseplate;

a light source supported on said metrology board and indicative of a signal therefrom; and

a light pipe supported on said chassis and positioned to carry light from said light source to outside said cover.

7. (currently amended): An electricity meter as in claim 2, further including an antenna supported on said metrology board and electrically associated therewith for transmitting through said cover a radio signal ~~corresponding with electricity consumption as determined by said metrology board~~.

8. (original): An electricity meter as in claim 2, further including a chassis supported on said baseplate.

9. (previously presented): An electricity meter as in claim 8, further including;

a circuit board, at least partially supported on said chassis, providing additional functionality beyond the functionality provided by said metrology board; and

a fixed connector interconnecting between said metrology board and said circuit board for electrical connections there between and for at least partial mechanical support of said circuit board.

10. (original): An electricity meter as in claim 8, further including an electronic meter display supported on said chassis.

11. (original): An electricity meter as in claim 8, further including a mechanical meter display supported on said chassis.

12. (original): An electricity meter as in claim 1, wherein said resilient connectors comprise a plurality of cantilevered spring connector elements.

13. (original): An electricity meter as in claim 1, further including a main circuit supported on said baseplate and defining an initial opening therein for calibration access to said metrology board during assembly of said electricity meter.

14. (original): An electricity meter as in claim 13, further including a nonremovable bridge clip received in said main circuit initial opening for providing a tamper proof circuit bridge closure to said opening.

15. (original): An electricity meter as in claim 14, wherein said bridge clip further includes exposed terminals to provide continued access to said main circuit for field testing of said electricity meter after assembly thereof.

16. (currently amended) An electricity meter, having:

an enclosure comprising a cover and a baseplate;

spades extending out from said baseplate for being seated in a meter receiving junction box;

a metrology board electrically connected to said spades and capable of producing a signal indicating electricity consumption; ~~and~~

a circuit board mounted within said enclosure and electrically connected to said metrology board, said circuit board providing additional functionality beyond the functionality

provided by said metrology board ~~selected customized features for said electricity meter beyond said metrology board electricity consumption signal.~~; and

wherein said metrology board is electrically connected to said spades using resilient connectors.

17. (original): A meter as in claim 16, further including a fixed connector electrically connecting said circuit board with said metrology board.

18. (original): A meter as in claim 17, further including a snap-fit mounting for said circuit board within said enclosure.

19. (original): A meter as in claim 18, further including a common power supply to provide power to both said metrology board and said circuit board, and wherein said fixed connector includes multiple respective conductors for carrying power from said power supply and for carrying data signals between said metrology board and said circuit board.

20. (currently amended): A meter as in claim 16, further including~~:~~

~~resilient connectors within said enclosure for connecting said spades with said metrology board; and~~

mating posts and holes associated with said baseplate and said metrology board for mutual physical connection thereof.

21. (original): A meter as in claim 20, further including:

a coil electrically connected with said spades and supported by said baseplate within said enclosure; and

a Hall Effect sensor carried on said metrology board such that said mating posts

and holes selectively align said coil and Hall Effect sensor for metrology operations.

22. (original): A meter as in claim 20, wherein said baseplate includes said mating posts, and said meter further includes

a chassis having formed connector holes and mounted on said baseplate mating posts; and

a meter display mounted on said chassis.

23. (original): A meter as in claim 22, wherein said cover is an at least partially opaque inner cover connectable with said baseplate, and wherein said meter further includes an at least partially transparent outer cover received about said inner cover and connectable with said baseplate such that said meter display is visible through said outer cover.

24. (currently amended): A meter as in claim 16, further including:

a main circuit supported on said baseplate and defining an opening therein for calibration access to said metrology board and said ~~customized features~~ circuit board during assembly of said electricity meter; and

a non-removable bridge clip received in said main circuit opening for providing a tamper proof circuit bridge thereto.

25. (original): An electricity meter, having:

an enclosure comprising a cover and a baseplate having tapered mounting posts;

spades extending out from said baseplate for insertion into a meter receiving receptacle;

a metrology board having holes mating with said tapered posts for mounting said metrology board on said baseplate, and resilient connectors electrically connecting said

metrology board to said spades such that said metrology board is capable of producing a signal indicating electricity consumption;

a circuit board mounted within said enclosure; and

a fixed connector electrically connecting said metrology board to said circuit board.

26. (original): A meter as in claim 25, further including an antenna within said enclosure supported for transmitting through said cover a radio signal corresponding to electricity consumption as determined by said metrology board.

27. (original): A meter as in claim 25, wherein said fixed connector includes multiple conductors for carrying data and power signals between said metrology board and said circuit board.

28. (original): A meter as in claim 25, further including:

a chassis supported on said baseplate;

a light source supported on said metrology board; and

a light pipe supported on said chassis and positioned to carry light from said light source to outside of said cover.

29. (original): A meter as in claim 28, wherein:

said chassis further defines mating connector holes matching with said baseplate tapered posts; and said meter further includes

a coil electrically associated with said spades; and

a Hall Effect sensor electrically associated with said metrology board and

operatively interactive with said coil for sensing electricity consumption, with said coil and said sensor aligned in predetermined positions as determined by said baseplate tapered mounting posts and said metrology board mating holes.

30. (previously presented): A meter as in claim 25, wherein said circuit board provides additional functionality beyond the functionality provided by said metrology board.

31. (original): A meter as in claim 25, further including:

a chassis defining mating connector holes and mounted therewith on said baseplate tapered mounting posts; and

a meter display mounted on said chassis; wherein

said metrology board, said circuit board, said fixed connector, said chassis and said meter display are all secured in snap-fit arrangements.

32. (original): A meter as in claim 31, wherein said cover is an at least partially opaque inner cover connectable with said baseplate, and wherein said meter further includes an at least partially transparent outer cover received about said inner cover and connectable with said baseplate such that said meter display is visible through said outer cover.

33. (original): A meter as in claim 25, further including:

a main circuit supported on said baseplate and defining an opening therein for calibration access to said metrology board and said customized features circuit board during assembly of said electricity meter; and

a non-removable bridge clip received in said main circuit opening for providing a tamper proof circuit bridge thereto.

34. (currently amended) An electricity meter, having:

an enclosure comprising a cover and a baseplate;

spades extending out from said baseplate for insertion into a meter box receptacle;

a basic metrology board, having first and second opposing surfaces, wherein said metrology board is electrically connected to said spades and capable of metering electricity consumption;

a circuit board, having third and fourth opposing surfaces, wherein said circuit board provides additional functionality beyond the functionality provided by said metrology board, wherein said circuit board is mounted within said enclosure and electrically connected to said metrology board; and

an antenna~~, associated directly with a~~ affixed substantially adjacent to selected of the first, second, third and fourth opposing surfaces, for transmitting a radio signal through said cover ~~a radio signal corresponding with metrology data from at least one of said boards~~.

35. (original): A meter as in 34, further including a power supply connected to provide power to both said metrology board and said circuit board.

36. (original): A meter as in claim 35, further including a fixed connector electrically connecting said metrology board to said circuit board and including plural conductors for carrying both data and power signals between said metrology board and said circuit board.

37. (original): A meter as in claim 34, further including a chassis supported on said baseplate, a light source supported on said metrology board, and a light pipe positioned on said chassis so as to carry light from said light source to outside said cover.

38. (currently amended): An electricity meter, comprising:

an enclosure with a baseplate and a cover without any metal elements;

spades extending from said baseplate for electrical contact of said meter with main power by insertion of said spades into an electricity meter junction box receptacle;

a metrology board having first and second opposing surfaces, wherein said metrology board is electrically connected with said spades and capable of metering electricity consumption; and

an antenna ~~supported on said metrology board~~ affixed substantially adjacent to and directly on a selected of the first and second opposing surfaces of said metrology board for transmitting a radio signal directly therefrom through said cover ~~a radio signal corresponding with electricity consumption as metered by said metrology board~~.

39. (original): An electricity meter as in claim 38, further including:

a circuit board for additional metrology features, mounted within said enclosure;

a common power supply within said enclosure for both said metrology board and said circuit board; and

a fixed connector at least partially physically supporting said circuit board and electrically connecting said circuit board with said metrology board using multiple conductors for carrying both data and power signals between said boards.

40. (original): An electricity meter as in claim 38, further including a chassis snap-mounted on said baseplate, a light source supported on said metrology board, and a light pipe positioned on said chassis in relation to said light source so as to carry light therefrom to outside

of said cover.

41. (original): An electricity meter as in claim 38, further including:

a meter display supported within said enclosure in a snap-fit arrangement; and

an at least partially transparent outer cover received about said inner cover for protection of enclosed components while permitting viewing of said meter display.

42. (previously presented): A modular electricity meter with multiple components selected from alternatives and assembled with snap fit and interlocking arrangements, comprising:

an encloseable casing having a common baseplate with plural mounting posts and an inner cover removably interconnected thereto;

a plurality of electrical connection mounting spades extending from said casing through said baseplate and outwardly therefrom, for mechanical seating thereof in an electricity meter junction box receptacle;

a basic metrology board, defining mounting holes therein for mating with said baseplate mounting posts for support of said basic metrology board within said casing in a predetermined relationship with said baseplate;

a plurality of resilient connectors received within said casing and electrically connecting between said basic metrology board and said spades so that said basic metrology board is connected for producing a signal indicating electricity consumption at the junction box receptacle with which said electricity meter is associated;

a circuit board received within said casing and electrically connected with said

basic metrology board, said circuit board providing additional functionality beyond the functionality provided by said metrology board;

a common power supply received within said casing for providing power to both said basic metrology board and said circuit board;

a fixed connector extending between said basic metrology board and said circuit board, for at least partially mechanically supporting said circuit board, said fixed connector including multiple respective conductors for carrying between said basic metrology board and said circuit board both data from said respective boards and power from said common power supply;

a support chassis, defining mounting holes therein for mating with said baseplate mounting posts for support of said chassis within said casing in a predetermined relationship with said baseplate;

a meter display mounted in snap fit arrangement supported in fixed relation to said support chassis;

a coil electrically associated with said spades and physically supported in predetermined relationship to said baseplate; ~~and~~

a Hall Effect sensor associated with said basic metrology board and situated in a predetermined position relatively adjacent said coil for electrical sensing interaction therewith, said predetermined position being formed in part by said predetermined relationship between said baseplate and said basic metrology board; and

whereby said modular electricity meter establishes predetermined spatial

relationships between selected alternative components using snap fit and interlocking arrangements established from said common baseplate.

43. (original): A modular electricity meter as in claim 42, wherein said meter display comprises one of an electronic meter display and a mechanical based meter display.

44. (original): A modular electricity meter as in claim 42, wherein said resilient connectors comprise a plurality of cantilevered spring connector elements, and said meter further includes weldments such that said baseplate and said basic metrology board are welded to one another in said predetermined relationship thereof.

45. (original): A modular electricity meter as in claim 42, further including an at least partially transparent outer cover received over said inner cover for protection of components within said casing, and so that said meter display is visible therethrough.

46. (original): A modular electricity meter as in claim 42, wherein said baseplate mounting posts are tapered, and said mounting holes of said basic metrology board and said support chassis are commonly received thereover but have respectively different sets of diameters so that said basic metrology board and said support chassis are selectively separated from one another along the axial length of said baseplate tapered mounting posts.

47. (original): A modular electricity meter as in claim 42, further including an antenna directly incorporated into one of said basic metrology board and said circuit board for transmitting through said inner cover a radio signal indicating data from at least one of said boards.

48. (original): A modular electricity meter as in claim 42, further including:

a light source supported on said basic metrology board and indicative of said signal therefrom; and

a light pipe supported on said support chassis and positioned relative to said basic metrology board so as to carry light from said light source to outside said casing.

49. (original): A modular electricity meter as in claim 42, further including a main circuit supported on said baseplate and defining an initial opening therein for calibration access to said basic metrology board and said circuit board during assembly of said electricity meter.

50. (original): A modular electricity meter as in claim 49, further including a nonremovable bridge clip received in said main circuit initial opening for providing a tamper proof circuit bridge closure to said opening.

51. (original): A modular electricity meter as in claim 50, wherein said bridge clip further includes exposed terminals to provide continued access to said main circuit for field testing of said electricity meter after assembly thereof.

52. (original): A modular electricity meter as in claim 42, further including additional output means for outputting data from at least one of said basic metrology board and said circuit board using at least one of hardwired transmissions, radio frequency transmissions, pulse outputs, optical link outputs, modem telephone line transmissions and wireless telephone transmissions.

53. (original): Methodology for providing an electricity meter, comprising the steps of:

forming an encloseable casing comprising a cover and a baseplate;

including electrical connection spades situated for extending through said baseplate and outwardly therefrom, and adapted for mechanical seating thereof in a mating receptacle;

providing within said casing a metrology board electrically connected to said spades and capable of producing a signal indicative of electricity consumption; and

further including the steps of housing resilient connectors within said casing and situated for providing said electrical connection between said spades and said metrology board, whereby the assembly of said electricity meter and the formation of said electrical connection between said spades and said metrology board is achieved without requiring the use of individual connectors.

54. (original): Methodology as in claim 53, further including providing respective mating posts and holes associated with said baseplate and said metrology board for mutual physical connection thereof.

55. (original): Methodology as in claim 54, further including providing said baseplate with tapered posts and said metrology board with holes therein which are mated with said tapered posts such that said metrology board is supported on said baseplate in a predetermined position relative thereto.

56. (original): Methodology as in claim 55, further including the step of welding said baseplate and said metrology board together so as to fix them in their relative predetermined

position.

57. (original): Methodology as in claim 55, further including:

supporting a coil within said casing electrically associated with said spades and physically supported in predetermined relationship to said baseplate; and

including a Hall Effect sensor on said metrology board positioned relatively adjacent said coil in a preselected position determined by the predetermined positioning respectively of said coil and said metrology board relative to said baseplate.

58. (original): Methodology as in claim 54, further including:

supporting a chassis on said baseplate;

providing a light source supported on said metrology board and indicative of a signal therefrom; and

supporting a light pipe on said chassis and positioned to carry light from said light source to outside said cover.

59. (original): Methodology as in claim 54, further including supporting an antenna on said metrology board and electrically associated therewith for transmitting through said cover a radio signal corresponding with electricity consumption as determined by said metrology board.

60. (original): Methodology as in claim 54, further including:

supporting a chassis on said baseplate;

providing a circuit board within said casing designed for performing predetermined relatively higher level analysis of electricity consumption; and

electrically interconnecting between said metrology board and said circuit board a

fixed connector, which also provides at least partial mechanical support of said circuit board.

61. (original): Methodology as in claim 54, further including:

supporting a chassis on said baseplate; and

supporting one of an electronic meter display and a mechanical meter display on said chassis.

62. (original): Methodology as in claim 53, further including supporting a main circuit on said baseplate, which circuit includes an initial opening therein for calibration access to said metrology board during assembly of said electricity meter.

63. (original): Methodology as in claim 62, further including, after assembly of said electricity meter, inserting a nonremovable bridge clip into said main circuit initial opening for providing a tamper proof circuit bridge closure to said opening.

64. (original): Methodology as in claim 63, further including providing exposed terminals on said bridge clip to provide continued access to said main circuit for field testing of said electricity meter after assembly thereof.

65. (currently amended): Methodology for providing an electricity meter, comprising:

providing an enclosure with a baseplate and a cover without any metal elements;

extending spades from said baseplate for electrical contact of said meter with main power by insertion of said spades in an electricity meter junction box receptacle;

providing a metrology board having first and second opposing surfaces, wherein said metrology board is electrically connected with said spades and capable of metering electricity consumption; and

affixing ~~providing~~ an antenna ~~associated~~ disposed substantially adjacent to ~~directly with on~~ a selected of the first and second opposing surfaces of said metrology board for transmitting a radio signal directly therefrom through said cover ~~a radio signal corresponding with electricity consumption as metered by said metrology board~~.

66. (previously presented): A methodology as in claim 65, including further providing:

a circuit board providing additional functionality beyond the functionality provided by said metrology board, mounted within said enclosure;

a common power supply within said enclosure for both said metrology board and said circuit board; and

a fixed connector at least partially physically supporting said circuit board and electrically connecting said circuit board with said metrology board using multiple conductors for carrying both data and power signals between said boards.

67. (original): A methodology as in claim 65, including further providing a chassis snap-mounted on said baseplate, a light source supported on said metrology board, and a light pipe positioned on said chassis in relation to said light source so as to carry light therefrom to outside of said cover.

68. (original): A methodology as in claim 65, including further providing:

a meter display supported within said enclosure in a snap-fit arrangement; and

an at least partially transparent outer cover received about said inner cover for protection of enclosed components while permitting viewing of said meter display.

69. (currently amended): Methodology for providing a modular electricity meter with multiple components selected from alternatives and assembled with snap fit and interlocking arrangements, comprising:

providing an encloseable casing having a common baseplate with plural mounting posts and an inner cover removably interconnected thereto;

extending a plurality of electrical connection mounting spades from said casing through said baseplate and outwardly therefrom, for mechanical seating thereof in an electricity meter junction box receptacle;

providing a basic metrology board, defining mounting holes therein for mating with said baseplate mounting posts for support of said basic metrology board within said casing in a predetermined relationship with said baseplate;

receiving a plurality of resilient connectors situated within said casing and electrically connecting between said basic metrology board and said spades so that said basic metrology board is connected for producing a signal indicating electricity consumption at the junction box receptacle with which said electricity meter is associated;

situating a circuit board within said casing and electrically connected with said basic metrology board, said circuit board providing additional functionality beyond the functionality provided by said metrology board;

including a common power supply received within said casing for providing power to both said basic metrology board and said circuit board;

extending a fixed connector between said basic metrology board and said circuit board, for at least partially mechanically supporting said circuit board, said fixed connector including multiple respective conductors for carrying between said basic metrology board and said circuit board both data from said respective boards and power from said common power supply;

including a support chassis, defining mounting holes therein for mating with said

baseplate mounting posts for support of said chassis within said casing in a predetermined relationship with said baseplate;

mounting a meter display in snap fit arrangement supported in fixed relation to said support chassis;

electrically associating a coil with said spades and physically supported in predetermined relationship to said baseplate; ~~and~~

associating a Hall Effect sensor with said basic metrology board and situated in a predetermined position relatively adjacent said coil for electrical sensing interaction therewith, said predetermined position being formed in part by said predetermined relationship between said baseplate and said basic metrology board; and

whereby such methodology for providing such a modular electricity meter establishes predetermined spatial relationships between selected alternative components using snap fit and interlocking arrangements established from said common baseplate.

70. (original): Methodology for a modular electricity meter as in claim 69, wherein said meter display comprises one of an electronic meter display and a mechanical based meter display.

71. (original): Methodology for a modular electricity meter as in claim 69, wherein said resilient connectors comprise a plurality of cantilevered spring connector elements, and said meter further includes welding said baseplate and said basic metrology board to one another in said predetermined relationship thereof.

72. (original): Methodology for a modular electricity meter as in claim 69, including further providing an at least partially transparent outer cover received over said inner cover for protection of components within said casing, and so that said meter display is visible therethrough.

73. (original): Methodology for a modular electricity meter as in claim 69, wherein said baseplate mounting posts are tapered, and said mounting holes of said basic metrology board and said support chassis are commonly received thereover but are provided with respectively different sets of diameters so that said basic metrology board and said support chassis are selectively separated from one another along the axial length of said baseplate tapered mounting posts.

74. (original): Methodology for a modular electricity meter as in claim 69, including further providing an antenna directly incorporated into one of said basic metrology board and said circuit board for transmitting through said inner cover a radio signal indicating data from at least one of said boards.

75. (original): Methodology for a modular electricity meter as in claim 69, including further providing:

a light source supported on said basic metrology board and indicative of said signal therefrom; and

a light pipe supported on said support chassis and positioned relative to said basic metrology board so as to carry light from said light source to outside said casing.

76. (original): Methodology for a modular electricity meter as in claim 69, including further providing a main circuit supported on said baseplate and defining an initial opening therein for calibration access to said basic metrology board and said circuit board during assembly of said electricity meter.

77. (original): Methodology for a modular electricity meter as in claim 76, including further providing a nonremovable bridge clip received in said main circuit initial opening for providing a tamper proof circuit bridge closure to said opening.

78. (original): Methodology for a modular electricity meter as in claim 77, wherein said bridge clip further includes exposed terminals to provide continued access to said main circuit for field testing of said electricity meter after assembly thereof.

79. (original): Methodology for a modular electricity meter as in claim 69, including further providing additional output of data from at least one of said basic metrology board and said circuit board using at least one of hardwired transmissions, radio frequency transmissions, pulse outputs, optical link outputs, modem telephone line transmissions and wireless telephone transmissions.

2.0 STATUS OF CLAIMS

The original application sets forth claims 1-79, of which claims 1, 16, 25, 34, 38, 42, 53, 65 and 69 are independent claims. Claims 1-79 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

Claims 16 and 17 stand rejected under 35 U.S.C. §102(b) as being anticipated by Germer et al. (U.S. Patent No. 5,001,420). Claims 65 stands rejected under 35 U.S.C. §102(b) as being anticipated by Loy et al. (U.S. Patent No. 5,966,010). Claims 34-37, 38-41 and 66-68 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Germer et al. (U.S. Patent No. 5,001,420) in view of Loy et al. (U.S. Patent No. 5,966,010) and Johnson (U.S. Patent No. 4,298,839) and Edward et al. (U.S. Patent No. 4,792,677). Claims 18 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Germer et al. (U.S. Patent No. 5,001,420).

3.0 35 U.S.C. §112, 2nd PARAGRAPH REJECTIONS: Claims 1-79

Claims 1-79 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. It is with the following comments that Applicants respectfully traverse such rejection.

The Examiner asserts that the specification does not have support for the resilient connectors (154, 156, 158) connected to the spades (74,76,78 and 80). More specifically, the Examiner asserts that: "It is unclear from the drawings how these resilient connectors are connected to the spades since the connectors are located on one of the surface of the base plate."

As an initial matter, it will be appreciated that 12 claims (34-41, 65-68) do not contain a resilient connector limitation. Consequently, the above described enablement rejection is not applicable to such claims. The following comments are directed to the remaining claims.

It is well established that any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of such claim as to enable one of ordinary skilled in the pertinent art to make and use (without "undue experimentation") the claimed invention[1]. Based on the following arguments, it is respectfully submitted that the Applicants' specification as filed contains sufficient information concerning "resilient connectors" to enable one of ordinary skilled in the pertinent art to make and use (without "undue experimentation") such "resilient connector" technology. Thus, it is respectfully submitted that all claims containing a "resilient connector" limitation fully comply with all

[1] *Mineral Separation v. Hyde,* 242 U.S. 261, 270 (1916); *see also* MPEP, §2164.01 at 2100-174 (8th ed. August

pertinent requirements of 35 U.S.C. §112, 2nd paragraph and withdrawal of such grounds of rejection and allowance of the claims are earnestly solicited.

As an aid to explaining the Applicants' disclosure relating of resilient connectors 154, 156, and 158, selected Figures from the original specification have been colorized and will be referenced in this response.

The specification describes one exemplary embodiment of resilient connectors 154, 156, and 158 as follows:

> As further shown in present Figure 5, resilient connectors are placed on top side surface 88 of baseplate 14. Specifically, three cantilevered[2] spring connector elements 154, 156 and 158 are provided for operative interaction with select points on underside generally 160 of circuit board 140, when properly positioned (after assembly) for making electrical connections with such board 140. In such fashion, and per the wiring generally represented in present Figure 5, connections are made from spades 60, 62, 64 and 66 with circuit board 140 via resilient connectors 154, 156 and 158. Additional description of such connections appears below with reference to Figures 10 and 11.[3]

The Examiner's attention is directed to Fig. 5, present below, which depicts one exemplary embodiment of the Applicants' technology. To facilitate the Examiner's visualization of Fig. 5, such figure has been colorized and a gray background has been added to show spade openings 116, 118, 120 and 122 as well as calibration opening 90.

It should be noted that this response uses several figures that have been "colorized." To assist the reader in understanding the electrical and mechanical interconnections of the disclosed technology, in the various colorized figures, the same color is used for common electrical connections/points as well as mechanical type connections.

2001).

[2] *see* Appendix A for definition of "cantilevered".

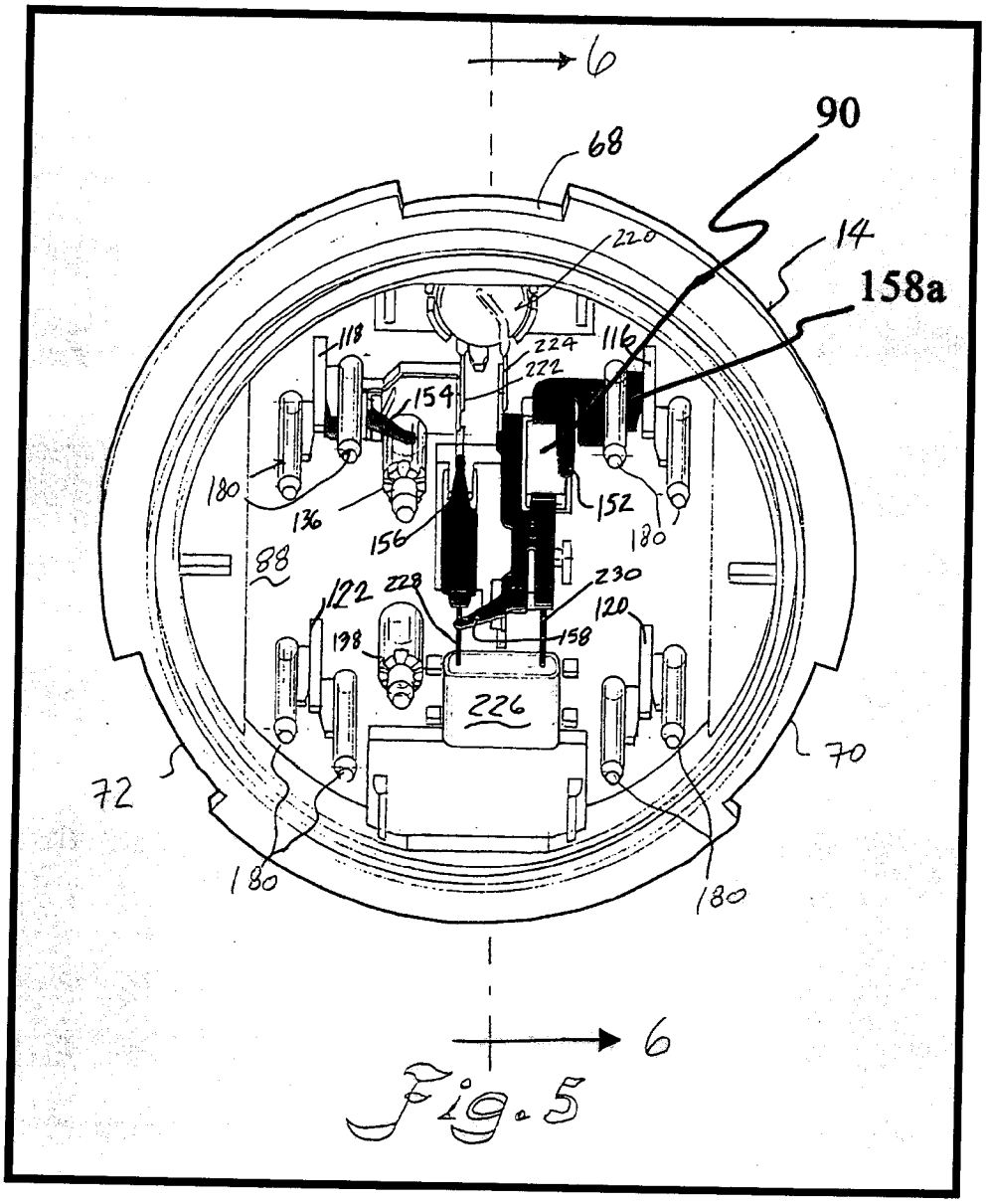

Fig. 5

Shown in Fig. 5 are three resilient connectors: connector 154 (pink), connector 156 (dark blue) and connector 158 (teal) wherein all such resilient connectors are attached to baseplate 14. Importantly, as shown in Fig 5, resilient connector 154 also attaches to the inside of spade opening 118. Similarly, resilient connector 158 attaches to the inside of calibration opening 90.

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[3] *see* Applicants' Specification at Page 26, Lines 13-26. 27

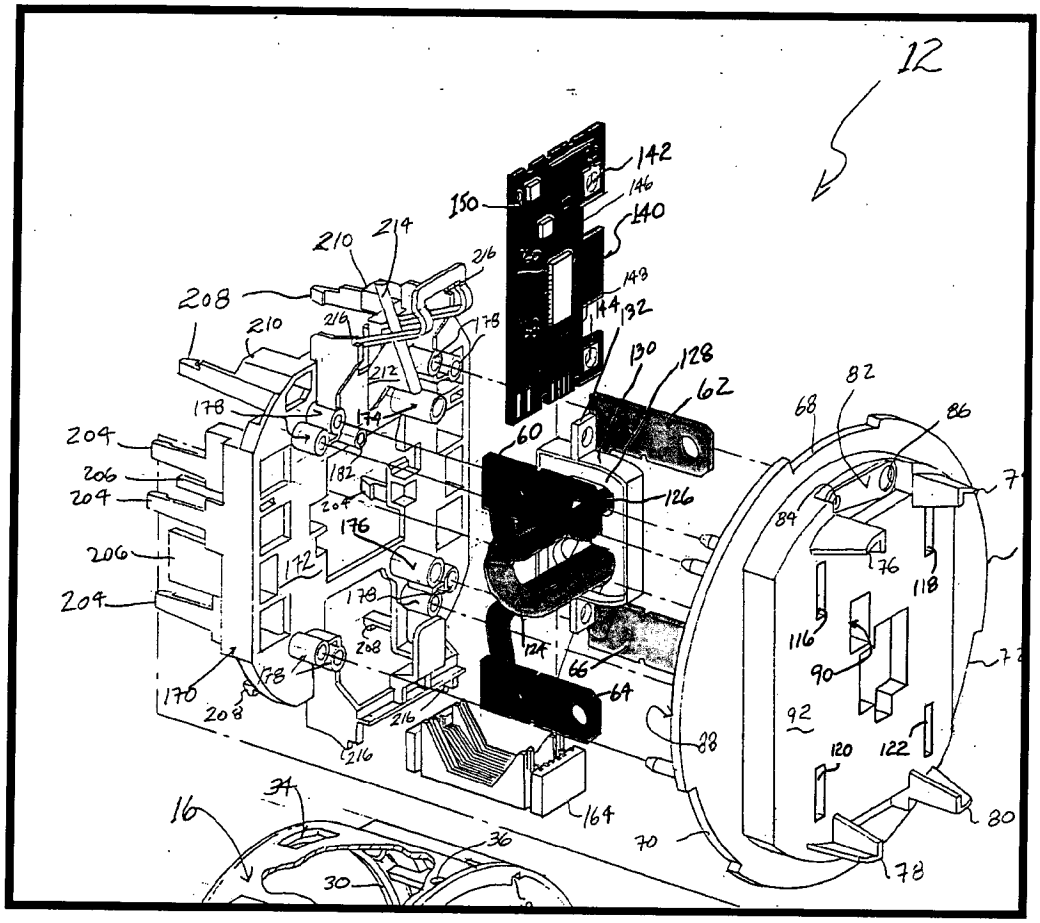
Resilient connector 158 also connects to spade opening 116. The section of resilient connector 158 that is between calibration opening 90 and spade opening 116 has been is designated by numeral 158a in colorized Fig. 5 and will be referred to as "connector segment 158a". Please note that calibration opening 90 interrupts the electrical connection between resilient connector 158 and spade opening 116 when plug 94 (discussed later) is not installed in calibration opening 90. As shown in Fig. 5, connector segment 158a is attached to baseplate 14. Connector segment 158a also contacts the inside of spade opening 116 and the inside of calibration opening 90. As such, when electrically conductive plug 94 is inserted into calibration opening 90, the electrical link between resilient connector 158 and spade opening 116 is complete.

Next, the Examiner's attention is directed to one exemplary embodiment of Applicants' coil assembly shown in Fig. 4. The specification describes such a coil assembly embodiment as follows:

> Referring particularly to present Figures 4 and 5, respective openings 116, 118, 120, and 122 are provided for respective spades 60, 62, 64 and 66. Such spades are attached to respective ends of electricity meter coil elements generally 124 and 126, so as to form a coil assembly. Interposed with such coil assembly is a laminated three legged or "figure 8" core generally 128 and its associated cover generally 130.[4]

The Examiner's attention is directed to colorized Fig. 4, present below, which depicts on exemplary embodiment of the above described technology.

[4] *Id.* at Page 24, Lines 7 – 15.



As shown above in colorized Fig. 4, coil element 126 (teal) is connected to spade 60 (teal) at one end and spade 64 (teal) at the other end, thereby forming an electrical connection between spade 60 and spade 64. Similarly, coil element 124 (pink) is connected to spade 62 (pink) at one end and spade 66 (pink) at the other end, thereby forming an electrical connection between spade 62 and spade 66. Upon viewing colorized Fig. 4, it should be apparent that when the coil assembly is attached to baseplate 14, spade 60 passes through spade opening 116, spade 64 passes through spade opening 120, spade 62 passes through spade opening 118 and spade 66 passes through spade opening 122. Thus, when the coil assembly is attached to baseplate 14 and plug 94 is

inserted into calibration opening 90, spade 60 (teal) is in electrical contact with resilient connector 158 (teal), and spade 62 (pink) is in electrical contact with resilient connector 154 (pink). Such an assembled configuration is depicted in colorized Fig. 7 presented below.

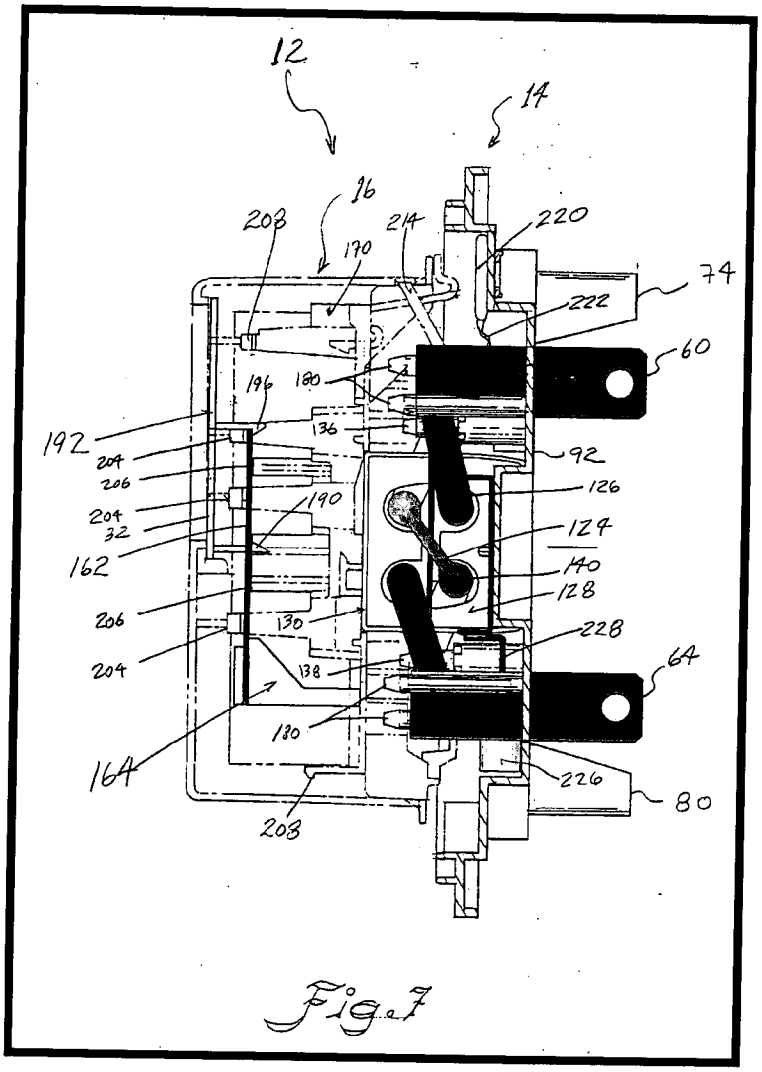


Fig. 7

Based on the above comments and arguments, it is respectfully submitted that the Applicants' specification as filed does enable one of ordinary skill in the art to make and use (without "undue experimentation") resilient connectors attached to spades. Consequently, it is

respectfully submitted that the relevant rejected claims, described above, fully comply with all pertinent requirements of 35 U.S.C. §112, 2nd paragraph and withdrawal of such grounds of rejection and allowance of such claims are earnestly solicited.

4.0 35 U.S.C. §102(b) REJECTIONS: Claims 16 - 17

Claims 16 and 17 stand rejected under 35 U.S.C. §102(b) as being anticipated by Germer et al. (U.S. Patent No. 5,001,420).

As noted in the Office Action, the Examiner asserts that Germer et al. disclose a utility meter having a cover (156) and a base plate (14), a metrology board (110) electrically connected to the spades (14, 18, 22), a circuit board (58) electrically connected to the metrology board (68) for providing functionality beyond the functionality provided by the metrology board. In addition, the Examiner asserts that the circuit board and the metrology board are electrically connected to each other through a "fixed connector (96) so that the circuit board (70)[5] is able to collect data from the metrology board . . . ."

First, please note that independent claim 16 has been amended to include the following limitation: "wherein said metrology board is electrically connected to said spades using resilient connectors."

Second, as is noted in the Applicants' specification, one object of the Applicants' technology is to allow for an electricity meter design that is substantially free of wires and

[5] Note: This appears to be an error. Applicants will assume "circuit board (70)" should be "circuit board (58)".

screws.[6] In one exemplary embodiment of the Applicants' technology, resilient connectors are used to help achieve such a goal. In contrast, a quick review of Germer at al. will reveal that the Germer et al. technology requires numerous wires and several bolts and nuts[7]. Consequently, it is respectfully submitted that Germer et al. fail to teach the Applicants' resilient connector technology, and thus, Germer et al. fail to teach "every element" of amended claim 16.

Third, claim 17 contains a "fixed connector" limitation. The Applicants' describe one exemplary embodiment of a "fixed connector" as follows:

> In certain embodiments, all required power and signal transmissions needed for second or higher level function circuit board 162 may be provided via use of a fixed connector generally 164. Such a fixed connector interconnects the boards edge to edge. In doing so, additional support is provided on one side generally 166 of second board 162.[8]

Please refer to colorized fig. 4 on page 30 of this response for an image of fixed connector 164 (gray colored connector).

In contrast, Germer et al. teach the use of component 96, which is an aluminum[9] "transverse support member[10]" apparently designed for structural support and grounding[11]. The relationship between transverse support member 96 and circuit board 58 is described as follows:

> The transverse support member 96 includes a radially extending tab 100 which extends through an aperture in the output circuit board 58 to position and support the output circuit board as described in more detail in the aforesaid U.S. Pat. application Ser. No. 07/412,351, filed 9/25/89.[12]

It is respectfully submitted that one of ordinary skill in the art would not consider such a

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[6] *see* Applicants' Specification at Page 8, L5-11; Page 9, L5-10; Page 11, L1-7; P28, L10-15; Page 29, L3-7.
[7] *see* Germer at al. at C8, L58-C9, L7; C4, L62; C11, L3-13, C12, L11-14; *see also* Fig 4, Fig 7, Fig 10.
[8] *see* Applicants' Specification at Page 26, L34- Page 27, L21.
[9] *see* Germer at al. at C6, 5.
[10] *Id.* at C4, L5-24; *see also* Fig. 4.

transverse support member a "fixed connector" as disclosed in the Applicants' specification.

Forth, as to claim 17, claim 17 is dependent from claim 16 and thus contains all the limitations of amended claim 16.

For at least these reasons, it is believed that claims 16 and 17 are presently in condition for allowance and acknowledgement of such is earnestly solicited.

5.0 35 U.S.C. §102(b) REJECTIONS: Claim 65

As noted above, the Examiner has rejected claim 65 under 35 U.S.C. §102(b) as being anticipated by Loy et al. (5,966,010).

The Examiner asserts that Loy et al. teaches an electricity meter having a metrology board, an enclosable casing having a cover, a base plate with spades and an antenna connected to said metrology board. The Examiner asserts that such antenna "is associated directly with a selected of the first and second opposing surfaces (half circumference) of the metrology board."

Claim 65 has been amended to more clearly claim the Applicants' antenna technology. The relevant amendment reads as follows:

> "affixing ~~providing~~ an antenna ~~associated~~ disposed substantially adjacent to ~~directly with on~~ a selected of the first and second opposing surfaces of said metrology board for transmitting a radio signal directly therefrom through said cover ~~a radio signal corresponding with electricity consumption as metered by said metrology board~~."

From reading the Applicants' specification, it should be apparent to one of ordinary skill in the art that the Applicants' technology provides an improved antenna, where such antenna is

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[11] *Id.* at C6, L36 – 46; *see also* C11, L37-44.
[12] *see* Germer at al. at C4, L5-10.

incorporated within such circuit board (such as a trace in the shape of an antenna) or attached to a surface of such circuit board[13] (similar to the "trace antenna" but affixed to the surface of the circuit board).

In contrast, Loy et al. teach the use of a "communications antenna 22 mounted on the edge of the radio circuit board 20."[14] [emphasis added] The Loy et al. antenna, (being attached to the edge of the radio board), could be broken off or otherwise damaged during assembly. In addition, the Loy et al. antenna noticeably increases the size of the radio circuit board/communications antenna combination requiring more room to house such a configuration. Thus, the Applicants' antenna technology provides at least three advantages over the Loy et al. antenna technology: (1) the Applicants' circuit board/antenna requires less room inside the meter compared to the Loy et al. circuit board/antenna combination, (2) the Applicants' antenna would be less likely to be damaged, and (3) where the antenna is incorporated within the circuit board, the circuit board/antenna combination become one component thereby reducing the parts count of the meter.

Based on the claim 65 amendments and the above comments, it is respectfully submitted that Loy et al. fail to disclose "every element" of the claimed subject matter and thus cannot at law serve as an anticipatory reference to claim 65. It is, therefore, believed that such claim is presently in condition for allowance and acknowledgement of such is earnestly solicited.

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[13] *see* Applicants' Specification at Page 8, L29-34; ["Another present object is improved data transmission features, for example, by avoiding the use of any metal in faceplates or cover elements, to permit meter data to be radiated **directly from a printed circuit board without requiring a separate antenna**."] emphasis added. [page 8, lines 29-34].

[14] Loy et al. at C5, L35-60.

6.0 35 U.S.C. §103(a) Rejections: Claims 34-37, 38-41 and 66-68

Claims 34-37, 38-41 and 66-68 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Germer et al. (U.S. Patent No. 5,001,420) in view of Loy et al. (U.S. Patent No. 5,966,010) and Johnson (U.S. Patent No. 4,298,839) and Edward et al. (U.S. Patent No. 4,792,677).

As an initial matter, it should be noted that by relying on rejection grounds under 35 U.S.C. §103(a) for alleged obviousness the PTO already acknowledges certain important deficiencies of the base references which renders such references inadequate for serving by themselves as a rejection basis for any of the rejected claims.

Claims 34-37

The Examiner asserts that Germer et al. combined with either Loy et al. or Johnson teach all the claim limitations found in Applicants' claims 34-37[15].

Independent claim 34 has been amended to more clearly claim the Applicants' antenna technology (as described previously). Claim 35 and claim 37 depend from claim 34 and thus contain all of the limitation of claim 34. Similarly, claim 36 depends from claim 35 and contains all the limitation of claim 35. In addition, claim 36 includes a "fixed connector" limitation such as the one described previously. For at least these reasons, it is respectfully submitted that claims 34-37 are in condition for allowance.

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[15] Please note that claim 37 is not listed as a rejected claim. In addition, the Office Action cites reference "Germer al el. (pat #4,804,957)" [see Office Action page 5, second paragraph]. However, US patent 4,804,957 was issued to Sleph et al., not Germer et al. It will be assumed that the Office Action was referring to Germer at el. (5,001,420).

Claims 38-41

The Examiner asserts that Germer et al. combined with either Loy et al. and/or with Johnson teach all the claim limitation found in Applicants' claims 38-41.

As to Applicants' claim 38, claim 38 includes the following limitation: "an enclosure with a baseplate and a cover without any metal elements". It is respectfully submitted that Germer et al. does not teach such an enclosure. Indeed, Germer et al. teach the use of an aluminum transverse support member 96 as well as an EMI shield. Such teachings clearly teach away from the Applicants' "enclosure" technology. In addition, independent claims 38 has been amended to more clearly claim the Applicants' antenna technology (as described previously). As to claim 39, claim 39 contains a "fixed connector" limitation. Finally, claims 39, 40 and 41 all depend from claim 38 and thus contain all the limitations of claim 38.

For at least these reasons, it is respectfully submitted that claims 38-41 are in condition for allowance.

Claims 66-68

As to claims 66-68, the Examiner asserts that Germer et al. combined with either Loy et al. and/or Edward et al. teach all limitations found in Applicants' claims 66-68.

Claims 66-68 depend from independent claim 65 and thus include all the limitations of claim 65. As noted above, claim 65 has been amended to more clearly claim the Applicants' antenna technology. In addition, claim 66 contains the above describe "fixed connector" limitation not found in the cited references.

For at least these reasons, it is respectfully submitted that claims 66-68 are in condition for allowance.

7.0 35 U.S.C. §103(a) Rejections: Claims 18 and 19

Claims 18 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Germer et al. (U.S. Patent No. 5,001,420).

As an initial matter, it should be noted that by relying on rejection grounds under 35 U.S.C. §103(a) for alleged obviousness the PTO already acknowledges certain important deficiencies of the base references which renders such references inadequate for serving by themselves as a rejection basis for any of the rejected claims.

It will be appreciated that claim 18 depends from claim 17 which depends from claim 16. Thus, claim 18 contains all the limitations of claim 17 and claim 16. In addition, claim 19 depends from claim 18 and thus contains all the limitations of claim 18. Consequently, both claim 18 and claim 19 contain the "fixed connector" limitation of claim 17 and the antenna limitation of claim 16 and the resilient connector limitation of claim 16.

Concerning Applicants' snap-fit technology, as is noted in the Applicants' specification, one object of the Applicants' technology is to allow for an electricity meter design that is substantially free of wires and screws.[16] As noted above, Applicants' resilient connectors technology and fixed connector technology help achieve such a goal. In contrast, a quick review of Germer et al. will reveal that the Germer et al. technology requires numerous wires and several

[16] *see* Applicants' Specification at Page 8, L5-11; Page 9, L5-10; Page 11, L1-7; P28, L10-15; Page 29, L3-7.

bolts and nuts[17]. Taking the Germer et al. reference as a whole[18], it is respectfully submitted that such reference does not teach the Applicants' snap-fit technology.

For at lease these reasons, it is respectfully submitted that claims 18 and 19 are in condition for allowance.

8.0 Objection to Drawings under 37 CFR 1.83(a)

The drawings have been objected to under 37 CFR 1.83(a) for allegedly failing to show every feature of the invention specified in the claims. The Office Action contends that the Applicants' drawings should be corrected to show "resilient connectors electrically connecting between the basic[s] metrology board and the spades as recited in claims 1, 25, 42, 53, and 69."

Based on the following comments and on the information presented in section 3.0 of this document, it is respectfully submitted that Applicants' drawings (Fig 4, Fig. 5, Fig. 7) as filed show Applicants' resilient connector technology. For the Examiner's further convenience, consider the colorized Fig.4 and Fig. 7 composite image shown below.

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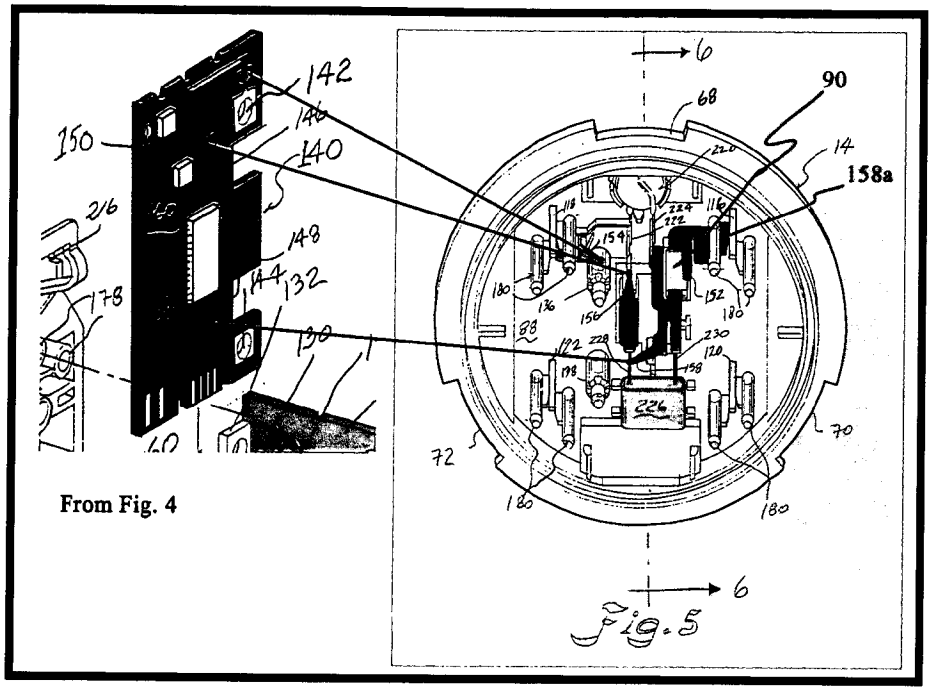
[17] *see* Germer et al. at C8, L58-C9, L7; C4, L62; C11, L3-13, C12, L11-14; *see also* Fig 4, Fig 7, Fig 10.

[18] Bausch & Lomb v. Barnes-Hind/Hydrocurve, 230 U.S.P.Q. 416 at 419 (Fed. Cir. 1986) [It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art." (emphasis added)]



The Applicants' teach the following in the written description:

> "As further shown in present Figure 5, resilient connectors are placed on top side surface 88 of baseplate 14. Specifically, three cantilevered[19] spring connector elements 154, 156 and 158 are provided for operative interaction with select points on underside generally 160 of circuit board 140, when properly positioned (after assembly) for making electrical connections with such board 140. In such fashion, and per the wiring generally represented in present Figure 5, connections are made from spades 60, 62, 64 and 66 with circuit board 140 via resilient connectors 154, 156 and 158. Additional description of such connections appears below with reference to Figures 10 and 11."[20]

It is respectfully submitted that the resilient connector technology is indeed shown in the Applicants' drawings as submitted and that one of ordinary skill in the art would understand the manner in which resilient connectors 154, 156 and 158 make contact with metrology board 140 based on the Applicants' written description and figures as originally filed.

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[19] *see* Appendix A for a definition of "cantilevered".
[20] *see* Applicants' Specification at Page 26, Lines 13-26.